

What is claimed is:

1. A frequency conversion apparatus comprising:
a high-frequency amplifier for amplifying an input high-frequency signal;
a mixer for mixing an output signal of the high-frequency amplifier with a local oscillation signal;
a filter for restricting a band of an output signal of the mixer to permit passage of only components within a predetermined band; and
a variable filter that is provided between the high-frequency amplifier and the mixer and of which a cut-off frequency is controllable,
wherein the cut-off frequency of the variable filter is so controlled as to vary with a reception channel signal.
2. A frequency conversion apparatus as claimed in claim 1,
wherein the variable filter is a variable low-pass filter that selectively permits passage of only low-band components of the input signal.
3. A frequency conversion apparatus as claimed in claim 1,
wherein the variable filter is a variable band-pass filter that selectively permits passage of only components of the input signal within a predetermined band.
4. A frequency conversion apparatus as claimed in claim 1,
wherein the variable filter is composed of a variable low-pass filter and a variable high-pass filter connected in series, the variable low-pass filter selectively permitting passage of only low-band components of the input signal and the variable high-pass filter selectively

permitting passage of only high-band components of the input signal.

5. A frequency conversion apparatus as claimed in claim 1,
wherein the variable filter is a variable high-pass filter that selectively permits passage of only high-band components of the input signal.

6. A frequency conversion apparatus as claimed in claim 1,
wherein the cut-off frequency of the variable filter is controlled by use of a phase-locked loop circuit that controls a frequency of the local oscillation signal.

7. A frequency conversion apparatus as claimed in claim 1,
wherein the cut-off frequency of the variable filter is controlled by a voltage synthesizing method.